The international journal & abstracting service for Vacuum Sciences & Technology

VACUUM

SURFACE ENGINEERING, SURFACE INSTRUMENTATION & VACUUM TECHNOLOGY

Volume 71, 2003

PERGAMON

PERGAMON

Vacuum 71 (2003) III–VII

VACUUM
SURFACE ENGINEERING, SURFACE INSTRUMENTATION & VACUUM TECHNOLOGY

www.elsevier.com/locate/vacuum

Contents

Volume 71 Numbers 1–2

AUTHORS		ARTICLES
M Leisch, C Mitterer and A Winkler	1	Foreword
Applied Surface Science		
J Kovač	3	Spectromicroscopic study of bimetal/semiconductor interfaces by synchrotron light
A Zalar, J Y Wang, Y H Zhao, E J Mittemeijer and P Panjan	11	AES depth profiling of thermally treated Al/Si thin-film structures
M Jenko, B Erjavec and M Milun	19	High-resolution AES analysis and imaging of In–80Sn oxidized surface using field emission auger microprobe
E R Shaaban, T Lohner, I Pintér, P Petrik, N Q Khánh, Z E Horváth and J Gyulai	27	Characterization of near surface region of plasma immersion ion-implanted silicon using Rutherford backscattering spectrometry, transmission electron microscopy and spectroscopic ellipsometry
D S Petrovič and M Jenko	33	A HRAES study of the morphology of non-metallic inclusions in non-oriented electrical steel containing Cu and Se
I Matolínová, S Fabík, K Mašek, L Sedláček, T Skála, K Veltruská and V Matolín	41	Influence of Pd–Co bimetallic interaction on CO adsorption properties of Pd_xCo_{1-x} alloys: XPS, TPD and static SIMS studies
D Gracin, M Jaksic, P Dubcek and Z Medunic	47	Investigation of the nano-structural properties of amorphous silicon carbon alloys by IBA technique, optical spectroscopy and GISAXS
M Kovács, Z Kántor, A Simon and K Frey	53	Reconstruction of low-count step-like signals in ion microbeam analysis
K Mašek, V Moroz and V Matolín	59	Reflection high-energy electron loss spectroscopy (RHEELS): a new approach in the investigation of epitaxial thin film growth by reflection high-energy electron diffraction (RHEED)
M Buljan, K Salamon, P Dubcek, S Bernstorff, I D Desnica-Frankovic, O Milat and U V Desnica	65	Analysis of 2D GISAXS patterns obtained on semiconductor nanocrystals
S Penner, G Rupprechter, H Sauer, D S Su, R Tessadri, R Podloucky, R Schlögl and K Hayek	71	Pt/ceria thin film model catalysts after high-temperature reduction: a (HR)TEM study

B Sustarsic, M Jenko, M Godec and L Kosec	**77**	Microstructural investigation of NbC-doped vacuum-sintered tool-steel-based composites

Surface Science

G Rupprechter, H Unterhalt, M Morkel, P Galletto, T Dellwig and H-J Freund	**83**	Extending UHV studies to the mbar range: vibrational SFG spectroscopy of high-pressure CO adsorption on Pt(111) and Pd(111)
R Schennach, G Krenn and K D Rendulic	**89**	The influence of the translational energy of methanol during adsorption on Rh (111) and on a rhodium/vanadium surface alloy
D Gleispach, P Kailbauer and A Winkler	**95**	Characterisation of desorbing molecules by REMPI-TOF spectroscopy: the system H_2 (D_2) – V(100)+O
Ž Crljen, D Šokčević, R Brako and P Lazić	**101**	DFT calculations of (111) surfaces of Au, Cu, and Pt: stability and reconstruction
T Kecskés, R Barthos, J Raskó and J Kiss	**107**	The effect of adsorbed CO on the surface chemistry of CH_3 on Rh(111)

Electronic Materials

Zs J Horváth, V Rakovics, B Szentpáli, S Püspöki and K Žďánský	**113**	InP Schottky junctions for zero bias detector diodes
V Borjanović, M Jakšić, Ž Pastuović, B Pivac and E Katz	**117**	IBIC Studies of structural defect activity in different polycrystalline silicon material
D Korošak and B Cvikl	**123**	Admittance spectroscopy of metal–semiconductor interfaces prepared by ionized cluster beam technique
I Kovačević, V Borjanović and B Pivac	**129**	Interstitial defects in ion-implanted Si
B Pivac, M Pavlović, I Kovačević, B Etlinger and I Zulim	**135**	UV light induced defects in amorphous silicon thin films
B Pivac, S Ilić, A Borghesi, A Sassella and M Porrini	**141**	Gap states produced by oxygen precipitation in Czochralski silicon
G T Orosz, G Gergely, S Gurban, M Menyhard, J Toth, D Varga and S Tougaard	**147**	Experimental determination of electron inelastic scattering cross-sections in Si, Ge and III–V semiconductors
M Pavlović, U V Desnica, Z-Q Fang and D C Look	**153**	Thermoelectric effect spectroscopy measurements on semi-insulating GaN
Zs Makkai, B Pécz and M A di Forte-Poisson	**159**	TEM investigation of defect structure in GaAlN/GaN heterostructures

Nanometer Structures

G Bilalbegović	**165**	Gold nanotube: structure and melting
I Pócsik, M Veres, M Füle, M Koós, J Kokavecz, Z Tóth and G Radnóczi	**171**	Carbon nano-particles prepared by ion-clustering in plasma
M Remškar and A Mrzel	**177**	Inorganic nanotubes: self-assembly and geometrical stabilisation of new compounds
G Radnóczi, Gy J Kovács, B Pécz, O Geszti and G Sáfrán	**185**	Fullerene-like structures in CN_x particles
J Szökő and A Berkó	**193**	Tunnelling spectroscopy of Pt nanoparticles supported on TiO_2(110) surface

Plasma Science

M Mozetič, A Vesel, V Monna and A Ricard	**201**	H density in a hydrogen plasma post-glow reactor
U Cvelbar, M Mozetič and A. Zalar	**207**	Improvement of electrical conductivity of Cu/Ag glue joints by discharge cleaning
J Laimer, G Misslinger and H Störi	**213**	Time-resolved study of the conversion of chlorinated hydrocarbons in non-equilibrium hydrogen plasmas
M Fink, J Laimer and H Störi	**219**	On the dynamics of unipolar and bipolar pulsed d.c. discharges used for plasma CVD
A Vesel, M Mozetič and A Zalar	**225**	Discharge characteristics of magnetron cells with different lengths in ultrahigh vacuum
Z Andreić, S Ellwi, S Pleslić and H-J Kunze	**229**	In-band EUV radiation of ablative capillary discharges in PVC
M Mozetič and A Zalar	**233**	Discharge cleaning of aluminum components
M Mozetič	**237**	Controlled oxidation of organic compounds in oxygen plasma

Thin Films

K Reichert, C Martínez, S Kyrsta, R Cremer and D Neuschütz	**241**	Sputter deposition and film characterization of NiAl on sapphire fibres
J Müller and D Neuschütz	**247**	Efficiency of α-alumina as diffusion barrier between bond coat and bulk material of gas turbine blades
C Eisenmenger-Sittner, H Bangert, A Bergauer, J Brenner, H Störi and P B Barna	**253**	Solid-state wetting and spreading of tin (Sn) on aluminium interfaces
P Panjan, M Čekada, D K Merl, M Maček, B Navinšek, A Jesih, A Zalar and M Jenko	**261**	Carbon-containing Ti–C:H and Cr–C:H PVD hard coatings
D Mandrino, M Milun and M Jenko	**267**	UHV Se evaporation source: room-temperature deposition on a clean V(110) surface
Z Papp, A Csik, G Erdélyi, G A Langer, D L Beke, L Daróczi, A Simon and K Kapta	**273**	Effect of hydrostatic pressure on crystallization and decomposition in amorphous Si/SiSb/Si system
C Mitterer, P H Mayrhofer and J Musil	**279**	Thermal stability of PVD hard coatings
L Dobos, B Pécz, E Feltin, B Beaumont and P Gibart	**285**	Microstructure of GaN layers grown on Si(111) revealed by TEM
E Neubauer, C Eisenmenger-Sittner, H Bangert and G Korb	**293**	AFM and AUGER investigations of as-deposited and heat treated copper coatings on glassy carbon surfaces with titanium intermediate layers
G Sáfrán, O Geszti and G Radnóczi	**299**	Formation of oriented silver telluride on single and polycrystalline Ag films

Vacuum Science

C Benvenuti, P Chiggiato, P Costa Pinto, A Prodromides and V Ruzinov	**307**	Influence of the substrate coating temperature on the vacuum properties of Ti–Zr–V non-evaporable getter films

V Matolín, J Drbohlav and K Mašek	**317**	Mechanism of non-evaporable getter activation XPS and static SIMS study of $Zr_{44}V_{56}$ alloy
J Drbohlav and V Matolin	**323**	Static SIMS study of Ti, Zr, V and Ti–Zr–V NEG activation
J Zemek and P Jiricek	**329**	XPS and He II photoelectron yield study of the activation process in Ti–Zr NEG films
T Gronych, P Řepa, L Peksa and J Palacký	**335**	The dependence of the Becker gauge calibration curve on the gas molecular mass
J Setina	**341**	Measurements of spinning rotor gauge response to step change of suspension head temperature

Volume 71 Number 3

H Kersten and J Winter	**347**	Foreword
D Theirich, Ch Soll, F Leu and J Engemann	**349**	Intermediate gas phase precursors during plasma CVD of HMDSO
T Schwarz-Selinger, M Meier, C Hopf, A von Keudell and W Jacob	**361**	Can plasma experiments unravel microscopic surface processes in thin film growth and erosion? Implications of particle–beam experiments on the understanding of a-C:H growth
J Berndt, S Hong, E Kovačević, I Stefanović and J Winter	**377**	Dust particle formation in low pressure Ar/CH_4 and Ar/C_2H_2 discharges used for thin film deposition
A A Meyer-Plath, K Schröder, B Finke and A Ohl	**391**	Current trends in biomaterial surface functionalization—nitrogen-containing plasma assisted processes with enhanced selectivity
T Chassé, H Neumann, B Ocker, M Scherer, W Frank, F Frost, D Hirsch, A Schindler, G Wagner, M Lorenz, G Otto, M Zeuner and B Rauschenbach	**407**	Mo/Si multilayers for EUV lithography by ion beam sputter deposition
H-E Wagner, R Brandenburg, K V Kozlov, A Sonnenfeld, P Michel and J F Behnke	**417**	The barrier discharge: basic properties and applications to surface treatment

Volume 71 Number 4

J S Colligon	**437**	Editorial
L D S Zambom and R D Mansano	**439**	Silicon nitride deposited by inductively coupled plasma using dichlorosilane and ammonia
N Ali, Q H Fan, Y Kousar, W Ahmed and J Gracio	**445**	Implementation of the time-modulated process to produce diamond films using microwave-plasma and hot-filament CVD systems
C Wang, X Yu, J Yu and H Meng	**451**	A study of fundamental mechanisms of Si–B–N composite films deposited by duplex treatment

S Jia-Lin, T Guang-Yan, L Sheng, C Yang and G Ji-Hua	**459**	Preparation and microstructure of nanocrystalline $Rb_{0.5}Cs_{0.5}Ag_4I_5$ thin films on NaCl substrates
W Wensheng, W Tianmin, Z Chunxi, L Guohua and L Yuexia	**465**	Study on variable capacitance diode of (p)nc-Si:H/(n)c-Si heterojunction
M Moraw and H Prasoł	**471**	Gas desorption from a stainless-steel surface in ultrahigh vacuum devices
H W Kim, B-S Ju and C-J Kang	**481**	Patterning of Ru electrode in O_2/Cl_2 gas using reactive ion etcher
G-R Gu, Y-A Li, Y-C Tao, Z He, J-J Li, H Yin, W-Q Li and Y-N Zhao	**487**	Investigation on the structure of TiO_2 films sputtered on alloy substrates
H W Kim and C-J Kang	**491**	Reactive ion etching of Pt electrode using O_2-based plasma
B Kim, S Kim and K Kim	**497**	Modelling of plasma etching using a generalized regression neural network
L I Belič, I Belič, B Erjavec and J Šetina	**505**	Neural network modelling of cold-cathode gauge parameters
S Ouendadji, K Ait-Hamouda, N Gabouze, N Saoula and K Henda	**517**	Electrochemical behavior of p-Si/TiC in aqueous HF
Y Huang, H Qiu, F Wang, L Pan, Y Tian and P Wu	**523**	Effect of annealing on the characteristics of Au/Cr bilayer films grown on glass
	III	VOLUME CONTENTS
	IX	AUTHOR INDEX
	XI	VACUUM DIARY